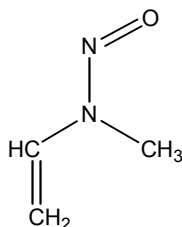


N-NITROSOMETHYLVINYLAMINE

CAS No. 4549-40-0

First Listed in the *Second Annual Report on Carcinogens*



CARCINOGENICITY

N-Nitrosomethylvinylamine is reasonably anticipated to be a human carcinogen based on sufficient evidence of carcinogenicity in experimental animals (IARC V.17, 1978; IARC S.4, 1984; IARC S.7, 1987). When administered in the drinking water, *N*-nitrosomethylvinylamine induced papillomas and squamous cell carcinomas of the esophagus, carcinomas of the tongue, and carcinomas of the pharynx in rats. When administered by inhalation, *N*-nitrosomethylvinylamine induced carcinomas and cholesteatomas of the nasal cavity, squamous cell carcinomas, and esophageal papillomas in rats (IARC V.17, 1978).

There are no adequate data available to evaluate the carcinogenicity of *N*-nitrosomethylvinylamine in humans.

PROPERTIES

N-Nitrosomethylvinylamine is a pale yellow liquid that is very volatile and photolabile. It is soluble in water, organic solvents, and lipids and is relatively unstable in aqueous solutions. When heated to decomposition, it emits toxic fumes of nitrogen oxides (NO_x).

USE

No data on the use of *N*-nitrosomethylvinylamine were available other than its use as a research chemical (IARC V.17, 1978).

PRODUCTION

The Chem Sources USA directory identified one supplier of *N*-nitrosomethylvinylamine in 1986 (Chem Sources, 1986). There is no evidence that *N*-nitrosomethylvinylamine has ever been produced commercially (IARC V.17, 1978). Synthetic production of nitrosamines is limited to small quantities, produced primarily as research chemicals (HEEP, 1980).

EXPOSURE

The primary routes of potential human exposure to *N*-nitrosomethylvinylamine are dermal contact and ingestion. The potential for significant exposure to *N*-nitrosomethylvinylamine is limited due to the small number of researchers using the compound

in cancer research. Nitrosamines are frequently produced during rubber processing and may be present as contaminants in the final rubber products. Potential exposure depends on the ability of the nitrosamines to migrate from the product and enter the body. Significant levels of *N*-nitroso compounds have been identified in a number of materials including pesticides, cosmetics, cutting fluids, and fire resistant hydraulic fluids. The *N*-nitroso compounds found in these products were apparently formed during storage or handling as the result of a reaction between amines present in the mixture and inorganic nitrite, which may have been added as a corrosion inhibitor. Consumer exposure may occur through ingestion of contaminated products. *N*-Nitroso compounds have been identified in a variety of vegetables, fruits, cheeses, meats, and alcoholic beverages (CHIP, 1978). *N*-Nitrosomethylvinylamine has been found in apple brandy in particular (IARC V.17, 1978). The estimated half-life of *N*-nitrosomethylvinylamine in vapor phase (ambient atmosphere) is 22 hours and the volatilization half-lives from a model river and lake are 9.5 and >2 days respectively.

REGULATIONS

EPA regulates *N*-nitrosomethylvinylamine under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), and Superfund Amendments and Reauthorization Act (SARA). EPA has established a final RQ of 10 lb based on new information. *N*-Nitrosomethylvinylamine is subject to reporting/recordkeeping requirements under RCRA and SARA. OSHA regulates *N*-nitrosomethylvinylamine under the Hazard Communication Standard and as a chemical hazard in laboratories. Regulations are summarized in Volume II, Table B-107.